

What Is Claimed Is:

1 1. A system for regulating communications between a plurality of
2 transmitters and a receiver, comprising:
3 a plurality of cells, wherein each cell controls communications from a
4 transmitter in the plurality of transmitters to the receiver;
5 wherein the plurality of cells are arranged in a token ring that regulates
6 communications from the plurality of transmitters to the receiver; and
7 wherein the presence of a token within a token ring cell indicates that the
8 corresponding transmitter may communicate with the receiver.

1 2. The system of claim 1, further comprising:
2 a plurality of receivers; and
3 a plurality of token rings, wherein each token ring passes a corresponding
4 token among token ring cells that control communications from the plurality of
5 transmitters to a receiver corresponding to the token ring.

1 3. The system of claim 2, wherein the plurality of cells are arranged in
2 a grid wherein a row corresponds to a transmitter and a column corresponds to a
3 receiver.

1 4. The system of claim 1, wherein the communications can include
2 one of:
3 an electrical signal;
4 a mechanical signal; and
5 an optical signal.

1 5. The system of claim 1, wherein each cell is configured to receive a
2 request signal from a corresponding transmitter, and in response to the request
3 signal, is configured to issue an acknowledgement signal to the corresponding
4 transmitter which allows the corresponding transmitter to begin transmitting if the
5 cell has the token.

1 6. The system of claim 5, wherein each transmitter further comprises
2 a reset mechanism that is configured to release the clearance to communicate with
3 the receiver by resetting the request signal.

1 7. The system of claim 6, wherein the system further comprises an
2 acknowledgement mechanism configured to confirm the release of the clearance
3 by resetting the acknowledgement signal.

1 8. The system of claim 1, further comprising an initialization
2 mechanism configured to initialize the single token in the token ring.

1 9. The system of claim 1, wherein the system operates
2 asynchronously.

1 10. The system of claim 1, wherein the system additionally comprises
2 a flow control mechanism configured to selectively limit the communications
3 from the transmitter to the receiver at the request of the receiver.

1 11. A method for regulating communications between a plurality of
2 transmitters and a receiver, comprising:

3 receiving a request signal from a transmitter at a cell in a plurality of cells
4 requesting to communicate with the receiver;
5 wherein the plurality of cells are arranged in a token ring that regulates
6 communications from the plurality of transmitters to the receiver; and
7 in response to the request signal, issuing an acknowledgement signal to the
8 transmitter which allows the transmitter to begin transmitting if the presence of a
9 token is detected within the cell.

1 12. The method of claim 11, wherein the plurality of cells include a
2 plurality of token rings, wherein each token ring passes a corresponding token
3 among token ring cells that control communications from the plurality of
4 transmitters to a receiver corresponding to the token ring.

1 13. The method of claim 11, wherein a plurality of cells that regulate
2 communications between the transmitters and receivers are arranged in a grid
3 wherein a row corresponds to a transmitter and a column corresponds to a
4 receiver.

1 14. The method of claim 11, wherein the communications can include
2 one of:
3 an electrical signal;
4 a mechanical signal; and
5 an optical signal.

1 15. The method of claim 11, further comprising revoking the
2 permission for the transmitter to communicate with the receiver when the
3 transmitter resets the request signal.

1 16. The method of claim 15, further comprising resetting the
2 acknowledgement signal to confirm the revocation of the permission for the
3 transmitter to communicate with the receiver.

1 17. The method of claim 11, further comprising initializing the token
2 in the token ring.

1 18. The method of claim 11, wherein the system operates
2 asynchronously.

1 19. The method of claim 11, further comprising controlling the flow of
2 communications by selectively limiting the communications from the transmitter
3 to the receiver at the request of the receiver.

1 20. A multi-processor system, comprising: ✓
2 a plurality of processors;
3 a plurality of transmitters associated with the processors;
4 a plurality of receivers associated with the plurality of processors;
5 a plurality of cells, wherein each cell controls communications from a
6 transmitter in the plurality of transmitters to a receiver;
7 wherein the plurality of cells are arranged in a token ring that regulates
8 communications from the plurality of transmitters to a receiver; and
9 wherein the presence of a token within a token ring cell indicates that the
10 corresponding transmitter may communicate with the receiver.